

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* NORIKO SAKASHITA,  
YASUHIRO MIKI and AKIRA TAKAKI

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Appeal 2006-1581  
Application 10/730,887  
Technology Center 1700

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Decided: September 29, 2006

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Before WALTZ, KRATZ, and FRANKLIN, *Administrative Patent Judges*.  
FRANKLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1-4.

Claim 1 is representative of the subject matter on appeal and is set forth below:

1. A processing aid for a vinyl chloride resin having specific viscosity  $\eta_{sp}$  of at least 0.5, which is obtained by polymerizing

1 to 50 parts by weight of a monomer mixture (B) comprising 0 to 49% by weight of methyl methacrylate,

51 to 100% by weight of at least one monomer selected from the group consisting of a methacrylate ester except methyl methacrylate and an acrylate ester, and

0 to 20% by weight of a vinyl monomer copolymerizable therewith, in the presence of a latex of a (co)polymer having specific viscosity of at least  $\eta_{sp}$  0.7,

which is obtained by polymerizing in emulsion 99 to 50 parts by weight of a monomer mixture (A) comprising

51 to 100% by weight of methyl methacrylate,

0 to 49% by weight of at least one monomer selected from the group consisting of a methacrylate ester except methyl methacrylate and an acrylate ester, and

0 to 20% by weight of a vinyl monomer copolymerizable therewith, wherein the total amount of (A) and (B) is 100 parts by weight,

and wherein specific viscosity is measured at 30°C using Ubbelohde's Viscometer on 0.1 g of polymer dissolved in 100 mL chloroform.

The Examiner relies upon the following references as evidence of unpatentability:

Kanegafuchi <sup>1</sup>	GB 1 378 434	Dec. 27, 1974
Tuzuki	US 4,179,481	Dec. 18, 1979
Matsuba	EPA 0 392 465 A1	Oct. 17, 1990
Matsuba	US 5,093,420	Mar. 3, 1992

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<sup>1</sup> We use the first listed name from the title of the corporation as shown in col. 1, ll. 1-3 of this patent.

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, as being obvious under 35 U.S.C. § 103 over Tuzuki.

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Matsuba. (U.S. Patent 5,093,420 or the European counterpart of EPA 0 392 465).

Claims 1-4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Kanegafuchi.

We have carefully reviewed Appellants' Appeal Brief filed November 2, 2004, the Substitute Examiner's Answer mailed November 3, 2005, and Appellants' Reply Brief filed on December 30, 2005, and the evidence of record, in making our determinations herein. We note that the Substitute Examiner's Answer is in response to the Remand to the Examiner mailed September 28, 2005. Our reference to the Answer in this decision is a reference to the Substitute Examiner's Answer mailed on November 3, 2005.

#### I. The Art Rejections

We first note that our determinations made herein equally apply to each of the art references applied by the Examiner. Although we may discuss a particular reference by name or a particular reference range teaching, the determinations made hereinafter equally apply to each of the art rejections of record, resulting in the same outcome.

A comparison of the argued limitations of Appellants' claim 1 with the applied art is set forth below.

Element	Claim 1	Tuzuki	Matsuba (US or EP)	Kanegafuchi
Specific viscosity of second step polymer	at least 0.5	at least 0.24	above 0.3 <sub>c</sub> *	at least 0.24 <sub>c</sub>
Specific viscosity of first step polymer	at least 0.7	silent	silent	Silent

\*The Examiner makes additional findings that certain examples of Matsuba teach values of about 0.5 and about 0.56 (Answer, page 5). We cannot find where Appellants dispute these particular findings made by the Examiner.

As pointed out by the Examiner in the Answer, Tuzuki teaches a specific viscosity based in chloroform of “at least about 0.24” for the second step polymer (Answer 4).

On page 3 of the Reply Brief, Appellants argue that the value of “at least 0.24” is significantly lower than the value of “at least 0.5”.

We base our affirmance of each of the §102(b)/103(a) rejections in the instant case with reference to *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), wherein the Court stated the following:

While the art and science of polymer chemistry may be distinguished from that of simpler compounds and compositions, in *Spada*'s case we conclude that the Board correctly found that the virtual identity of monomers and procedures sufficed to support a *prima facie* case of unpatentability of *Spada*'s polymer latexes for lack of novelty. See, e.g., *In re Thorpe*, 777 F.2d 695, 697-98, 227 USPQ 964, 966 (Fed. Cir. 1985), wherein the examiner's rejection of product-by-process claims under §102/103, based on similarity of reactants, reaction conditions, and properties, amounted to a *prima facie* case of unpatentability. In response to the PTO's

asserted *prima facie* case the applicant may argue that the inference of lack of novelty was not properly drawn, for example if the PTO did not correctly apply or understand the subject matter of the reference, or if the PTO drew unwarranted conclusions therefrom. However, when the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not. *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138 (Fed. Cir. 1986); *In re Ludtke*, 441 F.2d 660, 664, 169 USPQ 563, 566 (CCPA 1971). Spada offered no such showing. The Board suggested that Spada provide some scientific explanation for the asserted differences between the properties of his compositions and those described by Smith. While an inventor is not required to understand how or why an invention works, we think that the PTO was correct, in view of the apparent identity of the compositions, in requiring Spada to distinguish his compositions from those of Smith. Although newly discovered properties can be the basis of claims to *novel* polymers, *E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1435, 7 USPQ2d 1129, 1133 (Fed. Cir.), *cert. denied*, 109 S.Ct. 542 (1988), Spada did not overcome, with argument or evidence, the apparent chemical identity of his polymers and those of Smith. Spada showed no error, in science or in law, in the Board's holding that the products appeared to be the same and thus that Spada's products were not new.

In the instant case, as pointed out by the Examiner on page 10 of the Answer, Appellants' claims are product-by-process claims. As stated in *In re Spada*, in view of the apparent identity of the compositions, it is Appellants' burden to distinguish his processing aid from those of the applied art. Appellants have not convincingly done so, for the following reasons.

First, on pages 3-5 of the Reply Brief, Appellants discuss Comparative Example 5 of Matsuba in an effort to show that Matsuba does

not disclose a first stage polymer having a specific viscosity value of at least 0.7. We observe, however, that Matsuba provides for a second stage polymer specific viscosity value of at least 0.3. Therefore, the range of specific viscosity values for both the first and second stage polymer is not limited to the values represented by Comparative Example 5. Hence, we are not convinced by Appellants' position on this issue. We also note that because the scope of values of the specific viscosity of the second stage polymer in each of the references fully encompasses the values claimed by Appellants, we are not convinced that the scope of values of the specific viscosity of the first stage polymer would not also encompass the values as claimed. It is Appellants' burden to show otherwise, and Appellants have not done so.

Second, the value of "at least 0.24" fully encompasses Appellants' claimed range of "at least 0.5". We note that selecting a narrow range from within a somewhat broader range disclosed in a prior art reference is no less obvious than identifying a range that simply overlaps a disclosed range. When, as here, the claimed ranges are completely encompassed by the prior art, the conclusion is even more compelling than in cases of mere overlap. The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where, in a disclosed set of percentage ranges, is the optimum combination of percentages. See In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980)("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." (citations omitted)). *See also In re Peterson*, 315 F.3d 1325, 1329, 65 USPQ2d 1379, 1382 (Fed. Cir. 2003). Also, it has been held that where the ranges recited in a claim

lie within the prior art, a prima facie case will likely exist. See In re Wertheim, 541 F.2d 257, 267, 191 USPQ 90, 100 (CCPA 1976). The burden then shifts to appellants to show that the claimed range imparts more than a difference in degree to make the invention as a whole separately patentable over the prior art. Id.

In the instant case, Appellants argue that their claimed range produces unexpected results (Reply Br. 4).

More specifically, on page 6 of the Reply Brief, Appellants argue that there are unexpectedly superior results shown for a two-stage polymer having a specific viscosity of at least 0.5 wherein the first stage polymer has a specific viscosity of at least 0.7. Appellants refer to Table 4 on page 26 of their specification, as well as Comparative Example 5 of Matsuba.

Appellants also refer to the Declaration of March 2003, and argue that it is stated therein that (1) Comparative Example 9 of Table 4 on page 26 of the Specification has a first step polymer viscosity value that is lower than claimed, (2) Comparative Example 10 has first step polymer and the second step polymer viscosity values lower than claimed, and (3) the first step polymer obtained by Experiment in the Declaration<sup>2</sup> has a lower specific viscosity value than claimed.

Appellants argue that it is shown that when the above-mentioned polymers are used as processing aids for poly (vinyl chloride), satisfactory

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<sup>2</sup> On page 9 of the Brief, Appellants also discuss this Declaration. We note that the Experiment 1 in the Declaration involves the same procedures used for Comparative Example 5 of Matsuba. The specific viscosity values of the first-step polymer and the second-step polymer were 0.64 and 0.58, respectively.

transparency, gelation property and foamability<sup>3</sup> are not obtained.

Appellants therefore argue that it is shown that satisfactory transparency, gelation property and foamability cannot be obtained when at least one of the specific viscosity of the first step polymer and the second step polymer is lower than the claimed specific viscosity of the present invention (Reply Br. 6-7).

Our comments of the above-mentioned rebuttal evidence is discussed below.

Representative Examples 17-20 are shown in Table 4. The viscosity value of the polymer at the first step is shown in the respective column, and the values are greater than “at least 0.7”. However, we observe that the values are not fully representative of the claimed range of “at least 0.7”.

Likewise, the values of the polymer at the second step are higher than at least 0.5, however, the values listed therein are also not fully representative of the claimed range of “at least 0.5”.

Although we appreciate Appellants' comparison of the results from Experiments 17-20, as well as Comparative Example 9, Comparative Example 10, Comparative Example 5 of Matsuba, and the example set forth by the Experiment in the Declaration of March 2003, the data representative of Appellants' invention is not commensurate in scope with their claimed range. Therefore, the comparisons made are unconvincing. We note that in order to establish unexpected results for a claimed invention, objective evidence of non-obviousness must be commensurate in scope with the

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<sup>3</sup> We observe that the term “foamability” is stated by Appellants. Table 4 on page 26 of the Specification indicates “formability”. The first paragraph on page 27 of the Specification indicates “foamability”.



claims which the evidence is offered to support. *In re Clemens*, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980); *In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978); *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); *In re Tiffin*, 448 F.2d 791, 792, 171 USPQ 294, 294 (CCPA 1971).

We also note that the law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. *See, e.g., Gardner v. TEC Sys., Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir.), *cert. denied*, 469 U.S. 830 [ 225 USPQ 232 ] (1984); *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); *In re Ornitz*, 351 F.2d 1013, 147 USPQ 283 (CCPA 1965); *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). These cases have consistently held that in such a situation, **the applicant must show that the particular range is critical**, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *Gardner*, 725 F.2d at 1349, 220 USPQ at 786 (obviousness determination affirmed because dimensional limitations in claims did not specify a device which performed and operated differently from the prior art); *Boesch*, 617 F.2d at 276, 205 USPQ at 219; *Ornitz*, 351 F.2d at 1016-17, 147 USPQ at 286; *Aller*, 220 F.2d at 456, 105 USPQ at 235. Appellants have made no such showing in the present case.

In view of the above, we therefore affirm each of the Examiner's 35 U.S.C. 102(b)/103(a) rejections. *See, e.g., In re Thorpe*, 777 F.2d 695, 697-98, 227 USPQ 964, 966 (Fed. Cir. 1985), wherein the examiner's rejection of product-by-process claims under §102/103, based on similarity of reactants, reaction conditions, and properties, amounted to a prima facie case of unpatentability.

Appeal 2006-1581  
Application 10/2006-1581

II. Conclusion

Each of the rejections is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(iv)(effective Sept. 13, 2004).

AFFIRMED

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